REMARKS

Please charge the required fees to have this response entered to our deposit account No 500687.

Reconsideration and allowance are respectfully requested.

Claims 1-42 are pending.

Claims 33-36 have been amended to recite "the geometric region has <u>at least one of</u> a stress field and a deformation rate" to be in conformity with the subsequent claim language "the geometric region has **at least one of** a rapid change in the stress field, a high stress field or a high deformation rate." Basis for new claims 37 can be found in the originally filed application including at page 3, line 1, through page 5, line 15. Basis for new claim 38 can be found in the originally filed application including at page 6, lines 3-10. Basis for new claims 39-42 can be found in the originally filed application including at pending claims 2, 5, 6 and 7. No new matter has been added.

Applicant thanks Examiner Alex Kok Soon LIEW for the courtesy extended during the interview of 20 July 2009. The interview materially narrowed the pending issues. As discussed, during the interview, pending claims 33-36 appear to distinguish over the cited prior art.

The rejection of claims 1-3, 7, 9-11, 15, 18, 19 and 23 as being anticipated by U.S. Patent No. 5,949,910 (Go) is respectfully traversed. The claimed invention is not anticipated by Go for the following reasons.

The claimed invention recites that "the compressed analyzed data set has high fidelity in regions of interest and has lower fidelity in regions of lesser interest" and "<u>automatically selecting a variable</u> from the data set such that a high <u>rate of change</u> of the variable indicates the regions of interest and a low rate of change of the variable indicates the regions of lesser interest." Thus, the compression is automatically adjusted between high fidelity and low fidelity based on the rate of change of the variable, not the variable itself. This is a major distinction between the claimed invention Go.

Go discloses an image encoding and decoding method and an apparatus that uses edge synthesis and inverse wavelet transform. Go teaches the use of two prior art encoding schemes.

The first encoding scheme splits an image into low frequency components and high frequency components using a threshold value, further splitting these low frequency components to obtain new low frequency and high frequency components and this is reiterated a certain number of times. The image is then wholly reconstructed by utilizing an encoding scheme that works from low towards high frequency information. This encoding scheme enables accurate image reconstruction but retains too much high-frequency info to achieve high compression ratios. See column 1, lines 41-60. Thus, it appears Go advises against using this encoding scheme since it is desired to have a high compression ratio. See column 2, lines 27-30.

The second encoding scheme utilizes a basic wavelet that is the first derivative of a smoothing filter, or low-pass filtering function, such that the wavelet acts as a high-pass filter. High frequency information, obtained by detecting local peaks from the wavelet transform, corresponds to the edges in the original image. This image is then wholly reconstructed by utilizing an algorithm, i.e. an inverse wavelet transform. See column 1, line 61 to column 2, line 13.

However, under both encoding schemes nothing suggests the compressed analyzed data set has high fidelity in regions of interest and has lower fidelity in regions of lesser interest. As defined by Webster's Dictionary, fidelity is the degree to which an electronic device accurately reproduces its effect. In Go, the compressed analyzed data set, under both encoding schemes, has no variation in fidelity because the high-frequency and low-frequency components undergo the same amount of compression. Thus, Go does not provide a compressed data set having high fidelity in regions of interest and lower fidelity in regions of lesser interest as recited in claims 1, 9 and 17. For this reason alone, the Section 102 rejection should be withdrawn.

In addition, Go does not automatically select a variable such that a high/low rate of change of the variable indicates regions of high/low interest. To support the rejection of this feature, the Examiner turns to column 7 lines 5-14. Although Go provides an edge detector that detects variations in the rate of change of pixel values, this is only done to identify the edges rather than to discern regions of interest.

Applicant notes the Examiner's argument that edge is field of interest since it is the higher frequency component of the wavelet and the background is a field of lesser interest since it is the lower frequency component of the wavelet. However, even if Go's edge detector were to indicate regions of interest, and they do not, the edge and main image are <u>not</u> compressed with high and low fidelity respectively. Indeed, nothing in Go suggests the compression of the edges and main image is automatically adjusted between high fidelity and low fidelity based respectively based on the rate of change of the variable. In view of the differences between the claimed invention and Go, withdrawal of the Section 102 rejection is respectfully requested.

The rejection of claims 4, 12 and 20, under 35 U.S.C. 103(a), as being unpatentable over Go in view of U.S. Publication 2001/0040997 (Tsap) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

Go has been distinguished from the claimed invention above. Tsap does not provide the deficiencies of Go to obtain the claimed invention. Specifically, as noted in our response filed 18 March 2009, Tsap does not teach that the rate of change of the variable is used to adjust compression. Nowhere does Tsap even teach or suggest monitoring the rate of change of any variable. Even if Tsap did disclose monitoring a rate of change, Tsap does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity. For the above reasons, the Section 103 rejection should be withdrawn.

One of the main advantages of the claimed invention is that it allows the finite element analysis solution to take place in high fidelity on the most

significant geometric locations at the most significant points in time, while simultaneously reducing fidelity elsewhere in the model. See page 9, lines 15-20. This advantage is not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 8, 16 and 24, under 35 U.S.C. 103(a), as being unpatentable over Go in view of U.S. Patent No. 6,801,665 (Atsumi) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

Go has been distinguished from the claimed invention above. Atsumi discloses a method and apparatus for encoding digital image data and transmitting it over communication lines where the user must identify and plug in the regions of interest into the system during the beginning, or in the middle, of the encoding process. More importantly, Atsumi does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 25-27, 29 and 32, under 35 U.S.C. 103(a), as being unpatentable over Go in view of U.S. Patent No. 5,991,515 (Fall) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

Go has been distinguished from the claimed invention above. Fall discloses displaying data graphically. However, Fall does not remedy the deficiencies in Go noted above. Specifically, Fall does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 5, 13 and 21, under 35 U.S.C. 103(a), as being unpatentable over Go in view of U.S. Patent No. 5,490,221 (Ransford) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

Go has been distinguished from the claimed invention above. Ransford discloses analyzing a 4-Dimensional data set. However, Ransford does not remedy the deficiencies in Go to obtain the claimed invention. Specifically, Ransford does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claim 30 under 35 U.S.C. 103(a), as being unpatentable over Go in view of Fall and in further view of Ransford, is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references. Go has been distinguished from the claimed invention and Fall and Ransford do not provide the deficiencies of Go for the reasons provided above.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 6, 14, 22, and 30 under 35 U.S.C. 103(a), as being unpatentable over Go in view of U.S. Patent No. 6,499,350 (Board) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.

Go has been distinguished from the claimed invention above. Board discloses analyzing the data set of a fan blade containment analysis of a casing when a fan blade impacts a foreign object during use. However, Board does not remedy the deficiencies in Go to obtain the claimed invention because Board does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claim 31 under 35 U.S.C. 103(a), as being unpatentable over Go in view of Fall and in further view of Board, is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references. Go has been distinguished from the claimed invention for the reasons provided above and Fall and Board do not provide the deficiencies of Go for the reasons provided above.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

The rejection of claims 33-36 under 35 U.S.C. 103(a), as being unpatentable over Go in view of Tsap and U.S. Patent No. 5,640,462 (Sato) is respectfully traversed. The claimed invention is not taught or suggested by the theoretical combination of references for the following reasons.
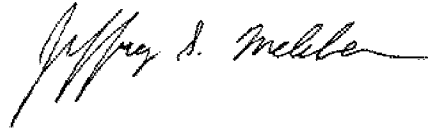
The claimed invention is not taught or suggest by the combination of Go and Tsap for the many reasons provided above. Sato does not provide the deficiencies of Go and Tsap. The Examiner points to column 9 lines 38-43 of Sato to support selecting the most significant cross-sectional views, wherein said most significant cross-sectional views contains at least one of a stress, deformation rate or other variable above a threshold. However, Sato does not teach using high rates of change to automatically adjust the compression rate for high fidelity and using low rates of change to automatically adjust the compression rate for low fidelity.

Moreover, the advantages of the claimed invention discussed above are not disclosed in the cited prior art.

In view of the many differences between the claimed invention and the theoretical combination of references and the advantages of the claimed invention, withdrawal of the Section 103 rejection is respectfully requested.

In view of all of the rejections of record having been addressed, Applicants submit that the present application is in condition for allowance and Notice that effect is respectfully requested.

Respectfully submitted,

Jeffrey S. Melcher
Reg. No. 35950

Manelli Denison & Selter PLLC
Customer Number 20736